SMIRNYAGINA, A.

High-speed machinery for agriculture. Tekh.mol. 29 no.5:10-12 '61. (MIRA 14:5)

(Agricultural machinery)

SMIRNYAGINA, A.

A machine digs tranches. Tekh.mol. 29 no.11:9 '61. (MIRA 14:11)
(Railroads--Equipment and supplies)

SMIRNYAGINA, A.

In the service of abundance. Znan. sila 36 no. 4:4-6 Ap '61.
(MIRA 14:4)

(Agricultural chemicals)

SMIRNYAGINA, Aleksandra Andreyevna; LEONOVA, T.S., red.; RAKITIN,
I.T. tekhn. red.

[Machinery for farms]Tekhnika - selu. Moskva, Izd-vo
"Znanie," 1962. 31 p. (Novoe v zhizni, nauke, tekhnike.
V Seriia: Sel'skoe khoziaistvo, no.21) (MIRA 15:11)
(Agricultural machinery)

SMIRNYAGINA, A.

Phototelegram without a photograph made with ink on writing paper.
Nauka i zhizn' 29 no.5:11 My '62. (MIRA 15:11)
(Facsimile transmission)

SMIRNYAGINA, A.

Diesel electric tractors are rolling. Tekh.mol. 30 no.1:20-21 '62. (MIRA 15:2)
(Tractors—Design and construction)(Diesel engines)

SMIRNYAGINA, A.

Soil healing. Tekh.mol. 30 no.10:1-3 '62. (MIRA 15:12)
(Solonets soils)
(Reclamation of land)

SMIRNYAGINA, A.

Vortex scythe. Znan.sila 37 no.4:14-15 Ap '62. (MIRA 15:4)
(Agricultural machinery)

SMIRNYAGINA, A.

Machinery in the meadows. IUn.tekh. 7 no.3:14-16 Mr '63.
(MIRA 16:3)

(Hay--Harvesting)

SMIRNYAGINA, A.

The combine increases its speed. Tekh.mol. 31 no.2:27 '63. (MIRA 16:6)

(Combines (Agricultural machinery))

SMIRNYAGINA, ~~O.~~ A. [Smyrniahina, O.]

On the border between two chemistries. Nauka i zhyttia 12 no.3: 10-12 Mr '63. (MIRA 16:11)

PERVUKHIN, F.?.; SMIRNYAGINA, M.M.

Effect of gibberellin on the growth and development of gramineous and leguminous plants. Izv. Sib. otd. AN SSSR no.9:101-105 '60. (MIRA 17:8)

1. Tsentral'nyy botanicheskiy sad Sibirskogo otdeleniya AN SSSR.

SMIRNYAKOV, N.V.

Genetic characteristics of the Murzhik deposits in Central Kazakhstan.
Izv.AN Kazakh.SSR.Ser.geol. no.19:88-100 '55. (MLRA 9:8)
(Kazakhstan--Ore deposits)

SMIRNYAKOV, V.V., Cand Tech Sci -- (diss) "Study of ways for mechanizing and increasing the quality of the purification of washing solutions in the boring mine shafts." Len, 1958, 18 pp (Min of Higher Education USSR. Len Order of Lenin and Labor Red Banner Mining Inst im G.V. Plekhanov. Chair of Construction of Mining Enterprises) 100 copies (KL, 29-58, 133)

SMIRNYAKOV, V.V.

Purification of flush muds during mine shaft boring. Zap.Len.
gor.inst. 36 no.1:186-194 '58. (MIRA 12:4)
(Boring) (Hydraulic mining) (Separators (Machines))

SMIRNYAKOV, V.V., kand.tekhn.nauk

Testing of hydrocylcones for the purification of washing solutions in skip shaft boring at the Novo-Volynsk Mine No.9. Izv. vys. ucheb. zav. gor. zhur. no.8:7-14 '60. (MIRA 13:9)

1. Leningradskiy ordena Lenina i ordena Trudovogo Krasnogo Znameni gornyy institut im. G.V. Plekhanova. Rekomendovana kafedroy stroitel'stva gornykh predpriyatiy.
(Separators (Machines)) (Lvov-Volyn' Basin—Shaft sinking)
(Drilling fluids)

VERKHOVSKIY, I.M.; GORBACHEV, V.S.; SMIRNYAKOV, V.V.

Use of hydrocyclones for the purification of drilling fluids in shaft sinking operations. Nauch. trudy MGI no. 32:113-120 '60. (MIRA 14:2)

(Separators (Machines)) (Drilling fluids)

SMIRNYAKOV, V.V., kand. tekhn. nauk; BORISOVETS, V.A., inzh.

Rock pressure in underground workings of the Tentek and Churubay-Nura areas of the Karaganda Basin. Izv. vys. ucheb. zav.; gor. zhur. no.12:43-47 '61. (MIRA 16:7)

1. Leningradskiy ordena Lenina i ordena Trudovogo Krasnogo Znameni gornyy institut imeni G.V. Plekhanova. Rekomendovana kafedroy stroitel'stva gornykh predpriyatiy.

(Karaganda Basin—Coal mines and mining)
(Rock pressure)

BOKIY, Boris Vyacheslavovich, prof.; ZIMINA Yekaterina Aleksandrovna, dots.; SMIRNYAKOV, Vitaliy Vasil'yevich, dots.; TIMOFEYEV, Oleg Vladimirovich, dots.; FEDOROV, S.A., prof., retsenzent; SHMELEV, A.I., red.izd-va; LOMILINA, L.N., tekhn. red.

[Mining engineering and mine supports] Provedenie i kreplenie gornykh vyrabotok. [By] B.V.Bokii i dr. Moskva, Gosgortekhizdat, 1963. 557 p. (MIRA 17:2)

SMIRNYAKOV, V.V., kand. tekhn. nauk; MIRZAYEV, G.G., inzh.

Metallic supports with a new system of collapsible joints. Izv. vys. ucheb. zav.; gor. zhur. 6 no.9:51-53 '63. (MIRA 17:1)

1. Leningradskiy ordenov Lenina i Trudovogo Krasnogo Znameni gornyy institut imeni G.V. Plekhanova. Rekomendovana kafedroy stroitel'stva gornykh predpriyatiy.

SMIRNYAKOV, V.V.; MIRZOYEV, G.G.

Load distribution on supports of horizontal workings in mines of the Karadzhar-Shakhan section. Zap. LGI 48 no.1:38-42 '63.
(MIRA 17:8)

MIRZAYEV, G.G., inzh.; SMIRNYAKOV, V.V., kand. tekhn. nauk

Actual observations of the developments of rock pressure in level workings at the Tekeli lead and zinc mine. Izv. vys. ucheb. zav.; gor. zhur. 8 no.7:57-62 '65. (MIRA 18:9)

1. Leningradskiy ordena Lenina i ordena Trudovogo Krasnogo Znameni gornyy institut imeni Plekhanova. Rekomendovana kafedroy stroitel'stva gornykh predpriyatiy.

GAYDAMAK, S., student; SMIRNYAKOVA, G., studentka; KUZ'MINA, E., studentka; LIPOVA, R., studentka; FOMINA, T., studentka; PAVLOVA, N., studentka; KALINOVA, M., studentka; SHCHELKO, A., student; SHCHERBAKOVA, L., studentka; GUDOCHKINA, L.M.

Effect of salinity on the results of determining the specific weight of soils. Sbor. nauch. trud. Kaz GMI no.19:197-198 '60. (MIRA 15:3)

(Soils--Analysis)

SMIRNYY, V.V.

New data on the stratigraphic correlation of the Teterev-Bug series of the Ukrainian Pre-Cambrian. Vest. LGU 17 no.18:47-55 '62. (MIRA 15:10)

(Southern Bug Valley—Geology, Stratigraphic)
(Teterev Valley—Geology, Stratigraphic)

[illegible], [illegible], inzh.; [illegible], [illegible], inzh.

Repair of buckled one-piece forged rotors. Energ. i elektrotekh. prom. no.3:52 Jl-S '65. (MIRA 18:9)

SMIRNYY, V.V.

Remarks on the optical determination of structural-optical types of K-Na feldspars. Vest.LGU no.24:152-155 '62. (MIRA 16:2)
(Feldspars) (Crystallography)

BROVKINA, Ye.P.; SMIRONOV, A.I.; GRISHCHUK, N.S.; DOTSENKO, P.V.; SOTNIKOV, A.A.

Effect of sulfur on the wear-resistance of cast iron. Izv.vys. ucheb.zav.; chern. met. 8 no.4:183-185 '65. (MIRA 18:4)

1. Odesskiy politekhnicheskiy institut.

SMIROUS, FRANTIŠEK

C

Use of paper chromatography and ionophoresis for the separation of anions. Separation of selenite, selenate, tellurite, and tellurate. František Veselý, František Smirous, and Josef Vepřek-Šiška (Vysoká škola chem.-technol., Prague). *Chem. Listy* 49, 1661-3(1955).—Paper chromatography on Whatman no. 1 paper was used for the sepn. of SeO_3^{--}, SeO_4^{--}, TeO_3^{--}, and TeO_4^{--}. The R_f values at 20° with a solvent mixt. 30 ml. EtOH, 70 ml. MeOH, and 100 ml. 1.94*N* HNO_3 in ascending arrangement was 0.79, 0.92, 0.67, and 0.0, resp. As a detecting agent a 10% soln. of KI acidified with HCl was used. The ionophoresis was carried out in 0.1*N* H_2SO_4 or in 0.4*N* Na_2SO_4. Only the latter electrolyte gave satisfactory results when at the potential drop of 7.5 v./cm. The movement of the above anions (in mm. after 3 hrs.) was 152, 201, 121, and 72, resp.

M. Hudlický

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SMIROUS, FRANTISEK

7

Use of paper chromatography and ionophoresis for the separation of anions. Separation of selenite, selenate, tellurite, and tellurate. František Veselý, František Smirous, and Josef Vepřek-Šiška. *Collection Czech. Chem. Communs.* 21, 1450-3(1956)(in German).—See *C.A.* 50, 7294.
E. J. C.

E

CZECHOSLOVAKIA/Analytic Chemistry. Analysis of Inorganic
Substances.

Abs Jour: Ref Zhur-Khim., No 23, 1958, 77305.

Author : Veprek-Siska Josef; Smirous Frantisek; Pliska
Vladimir.

Inst :

Title : Inorganic Nitrogen Compounds. I. Determination
of Hydronitrous Salts.

Orig Pub: Chem. listy, 1958, 52, No 1, 43-46.

Abstract: A photometric method of $N_2O_3^{2-}$ determination in the presence of NO_2^- or other inorganic nitrogen compounds was developed. The method is based on the color reaction of $N_2O_3^{2-}$ with $[Ni(CN)_4]^{2-}$: $N_2O_3^{2-} + [Ni(CN)_4]^{2-} = [Ni(CN)_3NO]^{2-}$

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E

CZECHOSLOVAKIA/Analytic Chemistry. Analysis of Inorganic
Substances.

Abs Jour: Ref Zhur-Khim., No 23, 1958, 77305.

color is stable 7 hours at 0.25 n. of NaOH and 3 hours at 0.01 n. NaOH. The calibration graph prepared using standard $Na_2N_2O_3$ solutions is rectilinear within the concentration range from 20 to 120 mg of $Na_2N_2O_3$ in 100 ml of the solution. The determination error is ±2.7%. Among the inorganic substances, only hydroxylamine interferes with the determination. The interfering effect of NH_2OH is eliminated by lowering the solution alkalinity to that of 0.01 n. NaOH; but the sensitivity of the method is considerably lower in that case. - Karel Kámen.

Card : 3/3

CZECHOSLOVAKIA / Inorganic Chemistry. Complex Compounds. C-1

Abs Jour: Ref Zhur-Khimiya, No 1, 1959, 740.

Author : Veprek-Siska, J.; Pliska, V.; Smirous, F.; Vesely, F.
Inst : Not given.
Title : Inorganic Nitrogen Compounds. II. The Mechanism for the Decomposition of Aqueous Hyponitrate Solutions.

Orig Pub: Chem. listy, 1958, 52, No 2, 184-189.

Abstract: The mechanism for the decomposition and oxidation of aqueous solution of $Na_2N_2O_3$ (I), also the effect of pH on the stability of solutions was investigated. The direction of isothermal dehydration of the system I + water at 20° C. indicates the presence of the monohydrate of I. Depending on the volume of gas, separated by complete decomposition of I in

Card 1/4

CZECHOSLOVAKIA / Inorganic Chemistry. Complex Compounds. C-1

Abs Jour: Ref Zhur-Khimiya, No 1, 1959, 740.

Abstract: $HN_2O_3^- \rightarrow HNO + NO_2^-$. This decomposition was investigated photometrically; the reaction of the $HNO(NO^-)$ anion with $K_2[Ni(CN)_4]$ to form the colored anion $[Na(CN)_3NO]^{2-}$ was studied. The HNO, formed initially in the absence of air, is further decomposed by N_2O + + H_2O; with air it is oxidized primarily to HNO_2; NO_2^- is the only oxidation product of I. The formation of the $H_2N_2O_2$ dimer of HNO was not observed. Based on the formation of the unstable HNO from the decomposition of I, several properties of I can be explained: in the reaction of I with Ag^+, the corresponding silver salt is not formed because the HNO is oxidized by Ag^+ to NO. In a similar way one

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Distr: 4E3d

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✓ Inorganic nitrogen compounds. III. The separation of inorganic nitrogen compounds by paper ionophoresis. Josef Vepřek-Šiška, František Šmirous, Vladimír Pliška, and František Veselý (Vysoká škola chem. technol., Prague). *Chem. listy* 52, 410–12(1958); cf. *C.A.* 52, 19651g.—Paper ionophoresis on Whatman paper no. 1 was used for the sepn. of NH_3, NH_2OH, N_2H_4, $N_2O_2^{--}$, $N_2O_3^{--}$, NO_2^-, and NO_3^-. Three procedures are required for the detection of the above ions: Treatment with 0.5% K_2HgI_4 in 2.5% NaOH developed NH_3, NH_2OH, and N_2H_4; treatment with 1% $AgNO_3$ and irradiation with ultraviolet detected $N_2O_2^{--}$ and $N_2O_3^{--}$; and treatment with 1% soln. of KI with 0.5% starch detected NO_2^- and NO_3^-. M. Hudlický

B.5
1/1

Smirous, F.

AUTHORS: Vepřek-Šiška, J., Šmirous, F. and Pliška, V.

TITLE: Inorganic Nitrogen Compounds (Anorganické sloučeniny dusíku
IV. Mechanism of the Reduction of Nitrites in Alkaline
Solution (IV. Mechanismus redukce dusitanů v alkalických
roztocích)

PERIODICAL: Chemické Listy, 1958, Vol 52, Nr 11, pp 2056 - 2059
(Czechoslovakia)

ABSTRACT: It was found that the reduction of the more concentrated
alkaline solutions of nitrite by sodium amalgam yields,
apart from the gaseous products,
$N_2O_3^{2-}$, $N_2O_2^{2-}$ and ammonia and the reduction of
$N_2O_3^{2-}$ and $N_2O_2^{2-}$ and ammonia. Hyponitrite is not
reduced by sodium amalgam. From the products found on
the reduction of NO_2^- , $N_2O_3^{2-}$ and $N_2O_2^{2-}$, it is possible
to formulate conclusions on the mechanism of nitrite
reduction. The reduction of nitrite to ammonia occurs
through nitroxyl and hydroxylamine;
$N_2O_3^{2-}$, $N_2O_2^{2-}$ and the gaseous products are formed by
the reaction of initially produced nitroxyl.
The products of the reduction of NO_3^-, NO_2^-, $N_2O_3^{2-}$
and $N_2O_2^{2-}$ are given in Table 1, p 2057.
The summary of reactions is indicated on p 2059.
Experiments and Results. Various concentrations of
NO_3^-, NO_2^-, $N_2O_3^{2-}$ and $N_2O_2^{2-}$ (sodium salts) in
solution were reduced with 1% sodium amalgam. $Na_2N_2O_3$
and $Na_2N_2O_2$ were prepared, then purified by ethanol
precipitation from their concentrated aqueous solutions.
This precipitation was repeated. The solution (25 ml.)
was stored and cooled with ice water and the amalgam
added slowly (total equivalent to 150% of the theoretical
amount required to reduce to ammonia). After the
addition of each fifth of the total amount of amalgam,
samples were taken from the solution so reduced. The
individual samples were examined for NO_2^-, $N_2O_3^{2-}$,
$N_2O_2^{2-}$, hydroxylamine, hydrazine and ammonia (Table 1).
The concentration range in the solutions to be reduced was
0.018 - 2 M. Further experiments were carried out on 0.1 M
solutions. Only ammonia formation was detected with any
certainty in solutions of NO_3 , NO_2 and $N_2O_3^{2-}$. The
failure to reduce hyponitrite with sodium amalgam was
confirmed by attempting it at various concentrations.
$N_2O_3^{2-}$ was detected by its reaction with potassium
nickelocyanide $K_2[Ni(CN_4)]$. To 0.1 M $K_2[Ni(CN)_4]$
solution (2 ml.) in a test tube, the test solution (1 ml.)
was added. This test solution had been neutralised to
pH8-10 with acetic acid (1:1) before mixing with the
reagent. The amount of acetic acid so required was
determined by the titration of a duplicate sample using
phenolphthalein as indicator. The tube with the solution
was heated for 20 min in a boiling water bath. The

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presence of $N_2O_3^{2-}$ is indicated by the production of the violet colour of the tricyanonitrosonickel compound. Its identity was demonstrated by absorption spectra. Since the coloured tricyanonitrosonickel compound can arise by the reaction of hydroxylamine with $K_2[Ni(CN)_4]$, the test was repeated each time with a sample which was acidified and then made alkaline again. With this decomposition of $N_2O_3^{2-}$ the reaction with $K_2[Ni(CN)_6]$ was found to be negative. Nitrite, hyponitrite, hydrazine and ammonia were detected after a preliminary separation by paper electrophoresis. Whatman Nr 1 chromatography paper was spotted with the reduced solution (5µl). For the detection of anions, the solution was neutralised to pH8-10 with acetic acid and for the detection of hydroxylamine, hydrazine and ammonia it was acidified slightly with sulphuric acid (1:1) (with cooling) immediately before spotting.

Authors' note: for the compounds HNO and $H_2N_2O_2$, the terms "nitroxyl" and "hyponitrous acid" are used, since they are generally so named in the current literature. This is an abridged translation.

There 1 figure, 1 table and 14 references, 4 of which are Czech, 3 English and 7 German.

ASSOCIATION: Katedra anorganické chemie, Vysoká škola chemicko-technologická, Praha (Department of Inorganic Chemistry, Technical University (Faculty of Chemical Technology, Prague.))

C

COUNTRY : Czechoslovakia
CATEGORY :
ABS. JOUR. : RZKhim., No. 22 1959, No. 78113
AUTHOR : Veprek-Siska, J., Pliska, V., Smirous, F., and*
[illegible] : Not given
TITLE : Inorganic Compounds of Nitrogen. I. Mechanism of the Decomposition of Aqueous Solutions of Hyponitrate
ORIG. PUB. : Collection Czechoslov Chem Commun, 24, No 3, 687-693 (1959)
ABSTRACT : See RZKhim, 1959, No 1, 740.

CARD: 1/1 *Vesely, F.

TITLE : Inorganic Compounds of Nitrogen. II. The Deter-

VEPREK-SISKA, J.; PLISKA, V.; SMIROUS, F.

Inorganic nitrogen compounds. V. Reactions of nitrohydroxylaminate with bivalent kations. In German. Coll.Cz.Chem. 24 no.11:3548-3552 N '59.
(EEAI 9:5)

1. Institut fur anorganische Chemie, Technische Hochschule fur Chemie, Prag. 2. Jetzige Adresse: Institut fur anorganische Chemie, Tschechoslowakische Akademie der Wissenschaften, Prag (for Veprek-Siska).
3. Jetzige Adresse: Institut fur Lebensmittelchemie, Technische Hochschule fur Chemie, Prag (for Pliska).
(Inorganic compounds) (Nitrogen) (Cations) (Nitrohydroxylamine)

SMIROUS, Karel

Physics

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L 11834-66 EWT(1)/EWP(m)/EWT(m)/ETC/F/EPF(n)-2/FCS(k)/EWA(1)/EWA(d)/EWG(m)

ACC NR: AT6001373 JD/WW/GS SOURCE CODE: UR/0000/65/000/000/0298/0305

64
B+1

AUTHOR: Kudryashev, L. I.; Smirov~~, A. A.~~
44.55 44.55

ORG: Kuybyshev Aviation Institute (Kuybyshevskiy aviatsionnyy institut)
44.55

TITLE: Calculation of the effect of the thermal unsteady-state on the coefficient of convective heat transfer in flow past a spherical body in the region of small Reynolds numbers
44,55

SOURCE: Teplo- i massoperenos. t. 1: Konvektivnyy teploobmen v odnorodnoy srede (Heat and mass transfer. v. 1: Convective heat exchange in an homogeneous medium). Minsk, Nauka i tekhnika, 1965, 298-305

TOPIC TAGS: convective heat transfer, fluid flow, Reynolds numbers

ABSTRACT: The article gives a general mathematical treatment of the subject without experimental data. It has been demonstrated that the problem of heat transfer for very small Reynolds numbers can be reduced to the problem of steady state heat conduction through a sphere whose radius is infinitely small, that is, the problem reduces to the solution of the following differential equation:

$$\frac{\partial^2 \vartheta}{\partial r_1^2} + \frac{2}{r_1} \frac{\partial \vartheta}{\partial r_1} = 0, \qquad (1)$$

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L 11834-66

ACC NR: AT6001373

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1T5

USSR/Communications - Statistics **Mar 1947**

"Development of Telegraphic and Telephonic Communications," A G Smiryagin, 2 pp

"Vestnik Svyazi" Vol 7, No 84

Forecast of telegraphic and telephonic facilities in the USSR to 1950. Traces development from 1940

1T6

[illegible]

USSR/Telephones **Nov 1947**
Telegraphy

"Thirty Years of Progress in Intercity Telegraph and Telephone Communications," A. G. Smiryagin, Chief, Central Administration for Trunk Line Communications, Ministry of Communications, 3 pp

"Vestnik Svyazi - Elektrosvyaz'" No 11 (92)

General historical account of the progress and development which have come about in the field of intercity telephone and telegraph communications in the USSR during the past 30 years. Names some of the contributors to developments, and how they were able to speed the development of communications in the USSR.

LC 29T105

[illegible], A. G.

"To Develop Long Distance Communications in Every Way," Vest. Svyazi-Elektrosvyaz, No. 1, 1948.

SMIRYAGIN, A. [G.]

Telegraph communication. Sov.sviaz. 2 no.11:7-8 N '52.(MLRA 7:8)

1. Nachal'nik TSentral'nogo upravleniya telegrafnoy sviyazi.
(Telegraph)

SMIRYAGIN, A. G.

"Technical Reconstruction of Telegraph Communications," Vest. Svyazi, No. 10, page ~~15~~x 3-5, 1952

Translation M-674, 27 Jul 55

Chief of the Central Administration of Telegraph Communications of the Ministry of Communications.

SMIRYAGIN, A.G.

Changing the manner of managing telegraph enterprises. Vest.sviazi 14 no.4:23-25 Ap '54. (MLRA 7:6)

1. Nachal'nik Glavnogo upravleniya telegrafnoy svyazi Ministerstva svyazi
(Telegraph)

SMIRYAGIN, A.G.

Thirty years of developing interurban telegraph and telephone communications. Vest. sviazi 7 no.11:4-6 N '55. (MLRA 9:1)

1.Nachal'nik TSentral'nogo upravleniya magistral'nykh svyazey Ministerstva svyazi.
(Telegraph) (Telephone)

SMIRYAGIN,A.G.

Potentialities for work improvement of the telegraph and telephone communication system. Vest.sviazi 15 no.9:14-15 S'55. (MLRA 8:12)

1. Nachal'nik UMTTS Ministerstva svyazi RSFSR
(Telecommunication)

SMIRYAGIN, A. G.

Class $21a^1$, 11_{05}, No. 103004. Smiryagin, A. G. and Korobkov, L. A. Method of storing and Reproducing Coded Combinations of Telegraph Signals.

When storing and reproducing telegraph signal code combinations by means of magnetic paper tape coated with ferromagnetic material, it is suggested for the sake of control of the contents and correctness of the recording on any portion of the iron layer and determination of the beginning or end of the message, to make the magnetic recording simultaneously with a reproduction of the printed text or other signs on the ribbon.

In order to keep normal step with transmissions of tape, it is suggested that the magnetic recording of code combinations and the printing of signs be produced on stationary tape at the instant of interruption of the start-stop flow.

In order to differentiate signals in recording, it is proposed that the recording of the code combination on the tape be produced by a movable magnetic head by means of various frequency carriers.

Authors' Certificates, Elektrosvyaz' No. 9, 1956.

SMIRYAGIN, A.G.

Preventive maintenance and repair of telegraph equipment. Vest. sviazi 16 no.7:20-21 Jl '56. (MIRA 9:9)

1.Nachal'nik UMTTS Ministerstva svyazi RSFSR.
(Telegraph--Apparatus and supplies)

SMIRYAGIN, A.G.

A valuable pamphlet. Vest. sviazi 16 no.12:23 D '56. (MLRA 10:2)

1. Nachal'nik Upravleniya mezhdugorodnoy telegrafno-telefonnoy svyazi.
(Tambov Province--Telecommunication)

SMIRYAGIN A.G.

SMIRYAGIN, A.G.

Development of the long-distance communication system. Vest. sviazi 17 no.10:37-38 O '57. (MIRA 10:11)

1. Nachal'nik Upravleniya mezhdugorodnoy telegrafno-telefonnoy svyazi Ministerstva svyazi SSSR.

(Telecommunication)

SMIRYAGIN, A.G., inzh.

The 125th anniversary of the electromagnetic telegraph. Vest. sviazi 17 no.11:34-36 N '57. (MIRA 10:12)

(Telegraph--History)

KRISTAL'NYY, Vladimir Samoylovich. Prinimal uchastiye GENIN, L.S.. SHTEYNBERG, A.L., retsenzent; SMIRYAGIN, A.G., otv.red.; BOGACHEVA, G.V., red.; SHEFER, G.I., tekhn.red.

[Long-distance telephone communications] Ekspluatatsiia mezhdugorodnoi telefonnoi sviazi. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1959. 182 p. (MIRA 13:1)
(Telephone)

SMIRYAGIN, A.G.

Live and work as true communist should. Vest. sviazi no.7:21-23 Jl '60. (MIRA 13:11)

1. Nachal'nik Upravleniya mezhdugorodnoy telegrafno-telefonnoy seti Ministerstva svyazi SSSR.
(Telecommunication--Employees)

PRAKHOV, Petr Vasil'yevich; SMIRYAGIN, A.G., retsenzent; BOGACHEVA, G.V., red.; SHEFER, G.I., tekhn. red.

[Organization and planning of telegraph communication systems] Organizatsiia i planirovanie telegrafnoi sviazi. Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1961. 365 p. (MIRA 14:10)

(Telegraph)

SMIRYAGIN, A.G.

Direct connection systems should be used more widely. Vest. sviazi 21 no.3:31 Mr '61. (MIRA 14:6)

1. Nachal'nik Upravleniya mezhdugorodny telegrafno-felefonnoy seti Ministerstva svyazi RSFSR.
(Telegraph)

SMIRYAGIN, A. G.

High quality of work is a problem of utmost importance confronting the telegraph workers. Vest. sviazi 23 no.4:13-14 Ap '63.
(MIRA 16:4)

(Telegraph—Employees)

PROCESSES AND PROPERTIES INDEX

An investigation of copper-beryllium alloys. A. P.
Smiryagin and A. V. Belova. *Tsvetnuie Metal.* **1933**,
No. 5, 83-97; No. 6, 111-18.—The purpose of the in-
vestigation was to study in detail the mechanical work-
ability and mechanical properties of Cu-Be alloys, and
particularly the variation of yield strength with their
capacity for hardening. A series of melts were made with
Be content varying from 0.1 to 3.0%. Cast samples
were heated for various lengths of time at 300° and either
quenched in water or cooled in the furnace. Slowly cooled
alloys contg. 2-3% Be attain considerable hardness within
2 hrs. at 300°; the quenched alloys, within 4 to 6 hrs.
In all cases the max. hardness was obtained in 8 to 10 hrs.
The tensile strength of cast alloys increases with the Be
content and is accompanied by a decrease in elongation,
the av. yield strength being about half the tensile strength.
In the hardened alloys, however the yield strength in-
creases greatly and practically coincides with the tensile
strength. Samples of alloys contg. 1-3% Be were cold-
and hot-rolled from 5 to 2 mm. thickness in 0.5-mm.
steps. For hot rolling the samples were heated to 700°.
All samples rolled satisfactorily with the exception of the
3% alloys, which could not be cold-rolled. Cold working
increases the tensile strength considerably with the elonga-
tions maintained at 50 to 60%. The hardness increases
to varying degree with increase in Be content, depending
on the mechanical treatment. The changes in mechanical
properties were correlated with the structure of the alloys.
The cast alloys showed considerable tendency toward
transcrystn. The microscopic examn. confirmed the cor-
rections introduced into the Cu-Be diagram by Masing
and Dahl (cf. C. A. 24, 1832, 3474). B. N. D.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

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Refining silicon bronzes and brasses. A. P. Smiryagin. *Tsvetnuie Metal.* **1934**, No 2, 87-103. Since Fe-Si is used in the prepn. of Si bronzes and brasses, the Fe must be eliminated from these alloys and also some other objectionable impurities, such as Al, As, Sn and Sb. The following fluxes recommended in the literature were tested: S + K_2SO_4, Na_2SO_4, $CaSO_4$, SiO_2 + Na_2CO_3 and SiO_2 + CuO. The first 3 fluxes removed Al and some Fe, but increased the S, which could not be removed by a subsequent treatment with Na_2CO_3. The other fluxes did not remove the Fe. The method of refining by blowing air through the molten alloys was unsatisfactory, because the Si was also removed by this operation. In view of these failures, the coalescence method was developed. This method is based on the fact that when Zn is added to the triple system Cu-Si-Fe, the m. p. of the alloy, (e. g., consisting of Si 5, Fe 5, Zn 15 and Cu 75%) is lowered and a solid phase, rich in Fe, seps. from the liquid within a few min. and rises to the surface. Successful coagulation of the iron depends mainly on temp. control: below 1000° the sepn. is too slow, above 1100° the coagulated mass disintegrates. Optimum temp. is 1055-65°. By this method about 70% of the Fe can be removed. However, it is difficult to lower Fe content below 0.8%. Numerous tables, photomicrographs and 51 references are given.

S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Ca

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Effect of beryllium on special bronzes. A. P. Smiryagin. *Tsvetnuie Metal.* 1935, No. 1, 92-103.—Various bronzes, contg. 0.5–1.5% Be were prepd. and analyzed chemically and micrographically, also tested for phys. and mech. properties. The results are tabulated in such a way as to show the possible uses of these bronzes in the machine construction industry. S. I. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

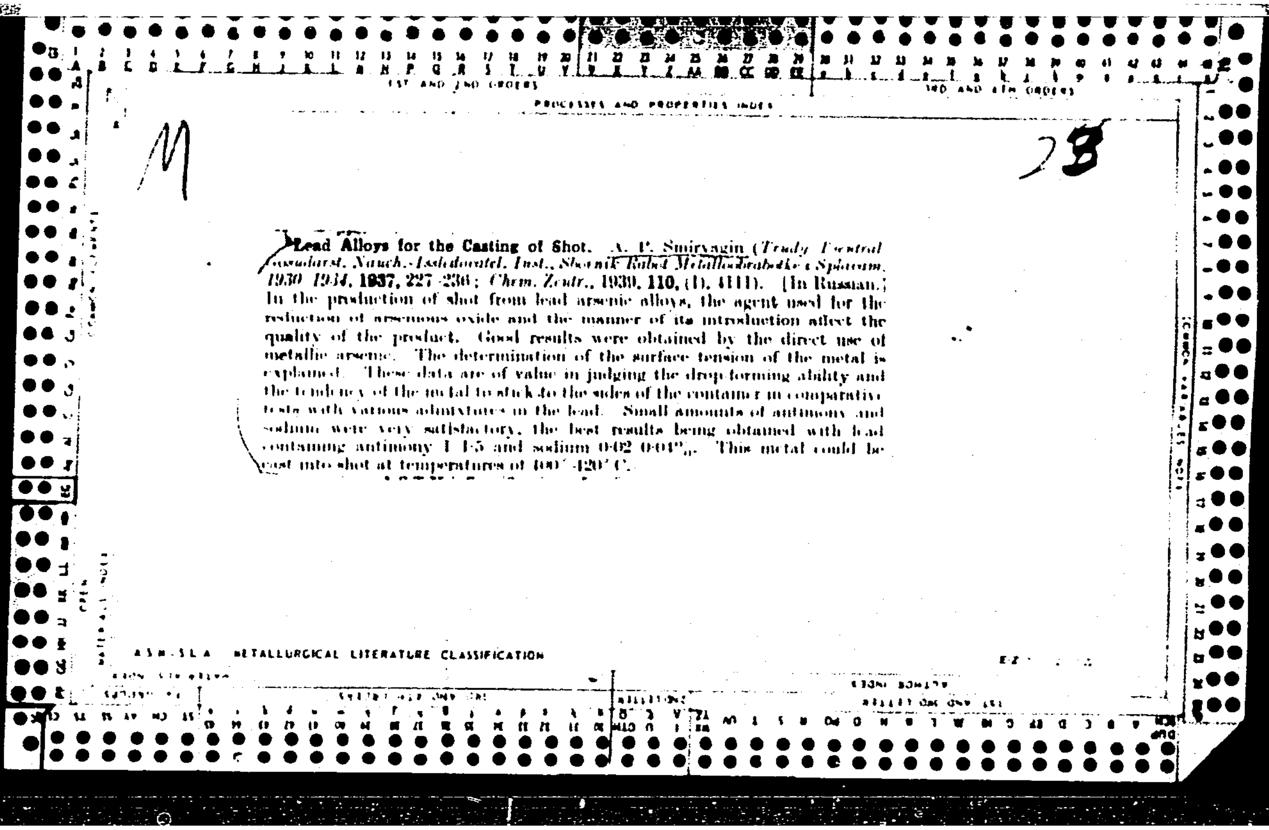
Ca

7

Surface tension of molten metals. A. P. Smiryagin. *Tsvetnye Metal.* 1935, No. 8, 102-10. The theory of surface tension of molten metals is reviewed and results are given of surface-tension measurements of molten alloys of Pb with Na, Sb, Ca, Mg, Cd, Sn, Bi, Hg, Zn and Cu. The purpose of the investigation was to develop an As-free Pb alloy suitable for production of *shot*. Alloys of Pb with Na or Na and Sb were found to be most promising. Alloy contg. 0.5 to 1.0 Sb and 0.02 to 0.04% Na is recommended as best for size 7 and 8 shot, and 1 to 1.5% Sb and 0.02 to 0.04% Na for sizes 3, 4, 5 and 6. Forty-one references.

B. N. Daniloff

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

M

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Lead Alloys for the Casting of Shot. A. P. Smirvagin (*Trudy Tsentral. Gosudarst. Nauch.-Issledovatel. Inst., Sbornik Rabot Metalloobrabotke i Splavam, 1930–1934*, **1937**, 227–236; *Chem. Zentr.*, 1939, **110**, (I), 4111). [In Russian.] In the production of shot from lead arsenic alloys, the agent used for the reduction of arsenious oxide and the manner of its introduction affect the quality of the product. Good results were obtained by the direct use of metallic arsenic. The determination of the surface tension of the metal is explained. These data are of value in judging the drop-forming ability and the tendency of the metal to stick to the sides of the container in comparative tests with various admixtures in the lead. Small amounts of antimony and sodium were very satisfactory, the best results being obtained with lead containing antimony 1–1·5 and sodium 0·02–0·04%. This metal could be cast into shot at temperatures of 400°–420° C.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

CA

9

Special bronzes and brasses. A. P. Smiryagin. *Liteinoe Delo* 1939, No. 8, 3-11; *Khim. Referat. Zhur.* 1940, No. 1, 96.—S. discusses the suitability for production purposes of Sn bronzes, Al bronzes (contg. 4.0-11.5% of Al and 5-6% of Fe, up to 5% of Mn, up to 5-6% of Ni and up to 3.25-3.75% of Si) and of Pb bronzes (contg. up to 30% of Pb and 7-8% of Mn). The compns. and properties of these bronzes are given and the effects of the temp. on their mech. properties and anticorrosive properties are described. The possible uses for these special bronzes are discussed. In nearly all cases these bronzes can replace Sn bronzes. The properties, compns. and possible applications of the following special brasses are given: Al brasses (up to 2-3% of Al), Mn brasses (up to 4.5% of Mn), Si brasses (up to 3-4% of Si), Sn brasses (up to 1.5% of Sn), Pb brasses (up to 3% of Pb) and Fe brasses (up to 1.3% of Fe). The proper selection of special brasses with anticorrosive properties for various purposes is described.

W. R. Henn

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

MATERIALS INDEX

Met. Abs.

II. Properties of Alloys.

***Brittleness of Cupro-Nickel Condenser Tubes and the Development of a Technology for Their Production.** A. P. Smiryagin, N. Z. Dnestrovsky, V. A. Kochkin, and N. I. Zelin (*Tsvet. Metally* (*Non-Ferrous Metals*), **1940**, (1), 96–105; (2), 72–79).—[In Russian.] In connection with excessive annealing brittleness of 70 : 30 cupro-nickel condenser tubes, a study of the whole process of production was carried out. Investigations at the works on tubes scrapped owing to annealing brittleness and on tubes which could be drawn satisfactorily, indicated that carbon in excess of about 0·05% was the cause of brittleness. The carbon was introduced with the "Mond" nickel granules and, to a lesser extent, with works scrap contaminated with graphite-containing drawing lubricant. Incorrect annealing involving overheating was a contributory cause. The above observations were confirmed by small-scale experimental melts. To avoid carbon, cathode nickel should be used instead of "Mond" nickel. The covering of the melt with carbon introduces only a negligible amount of carbon. Melts must be covered with carbon to prevent oxidation, which has a very harmful effect on the metal. Half-hard drawn tubes should be given a stress-relieving anneal at 450–550° C. This will eliminate any tendency to crack in the mercuric nitrate solution test. For complete annealing, use temperatures above the recrystallization temperature of 570° C. but not above 700° C., *i.e.* between 580° and 650° C. For annealing at the works, holding for 2 hrs. at the annealing temperature is recommended. The temperature to which extrusion billets are heated has no marked effect on the properties of the tubes and can be chosen to suit the capacity of the press. A sequence of drawing passes (reductions per pass of 20–30%) was developed for the cupro-nickel tubes containing less than 0·05% carbon. The first surfacing was done before drawing. The previously used graphite-containing lubricant was abandoned in favour of thick grease, linseed oil, or emulsion.—A. B.

CA

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Boundaries of the solid solution α in the system copper-aluminum-nickel. A. P. Smirvagin (Central Sci.-Research Inst. Treating Non-ferrous Metals, Moscow). *Izvest. Sektora Fiz.-Khim. Anal., Inst. Obshchei i Neorg. Khim., Akad. Nauk S.S.S.R.* **16**, No. 2, 180-96(1948); cf. Austin and Murphy, *C.A.* **17**, 2853.—The liquid-solid boundary of Cu-Al-Ni alloys contg. 0.38-13.30% of Al and 0.88-30% of Ni was detd. While Ni raised the initial and final temp. of solidification, Al, up to a certain quantity, lowered these points. The points on the solid boundary were checked on a special torsion app. (Tammann and Rocha, *C.A.* **27**, 5294). Homogenizing the alloys proceeded faster at higher Ni contents than of alloys with higher Al content. Since the satn. limit of the α-phase of the ternary system was detd., it permitted to select a large no. of alloys with desirable properties for industrial use. The effect of Fe on these alloys was also studied. The tested group of alloys contained Al 2-11, Ni 4.5, Fe 1.5-4.5%, and the rest Cu. Up to 1.5% Fe affected very slightly the boundaries of the α-phase. Around 3.5% Fe raised the initial and final solidification temps. M. Hosch

SHIRYAGIN, A. P., SHPAGIN, A. I.
SHAGIN, A. I.

SHIRYAGIN, A. P., SHPAGIN, A. I. SHAGIN, A. I.

M: Olovyanistyye Bronzy, Babbity, Pripoi i ikh Zameniteli (Tin Bronze, Babbit metals, Solders and their Substitutes) 1949, Moskva.

Soviet Source:

Abstracted in USAF "Treasure Island", on file in Library of Congress, Air Information Division. Report Nos. 108594-96, 108538, 108543, 108577-79, 108584, 108586-90, 108592.

SMIRIAGIN, A. P.

Industrial non-ferrous metals and alloys with copper and nickel bases Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1949. 459 p.
(50-55923)

TN758.S58

ACHERKAN, N.S., doktor tekhnicheskikh nauk, professor, glavnyy redaktor; ANTSYFEROV, M.S., kandidat fiziko-matematicheskikh nauk; ASTAKHOV, K.V., professor; VUKALOVICH, M.P., professor, doktor tekhnicheskikh nauk; KORELIN, A.I., kandidat tekhnicheskikh nauk; KRIPETS, E.S., inzhener; LAZAREV, L.P., kandidat tekhnicheskikh nauk; MAZYRIN, I.V., inzhener; MATYUKHIN, V.M., kandidat tekhnicheskikh nauk; NIKITIN, N.N., kandidat fiziko-matematicheskikh nauk; PANICHKIN, I.A., kandidat tekhnicheskikh nauk; PETUKHOV, B.S., kandidat tekhnicheskikh nauk; PODVIDZ, L.G., kandidat tekhnicheskikh nauk; SIMONOV, A.F., inzhener; SMIRYAGIN, A.P., kandidat tekhnicheskikh nauk; FAYNZIL'BER, E.M., professor, doktor tekhnicheskikh nauk; KHALIZEV, G.P., kandidat tekhnicheskikh nauk; YAN'SHIN, B.I., kandidat tekhnicheskikh nauk; MARKUS, M.Ye., inzhener, redaktor; KARGANOV, V.G., redaktor graficheskikh materialov, inzhener; SOKOLOVA, T.F., tekhnicheskiy redaktor.

[A machinebuilder's manual in six volumes] Spravochnik mashinostroitelia v shesti tomakh. Izd. 2-e, ispr. i dop. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry. Vol. 2. 1954. 559 p. (MIRA 8:1)
(Machinery--Construction) (Mechanical engineering)

SMIRYAGIN, A.P., kandidat tekhnicheskikh nauk.

Professor A.M. Bochvar's role in the creation of modern copper base alloys. Issl. splav. tsvet. met. no.1:18-19 '55. (MLRA 9:10)

(Copper alloys)

SMIRYAGIN, A.P., kandidat tekhnicheskikh nauk; VYSOTSKAYA, V.N.;
KVURT, O.S.

Research on antifriction alloys for use at high specific pressures and for shock loads. Issl. splav. tsvet. met. no.1:59-65 '55.
(MLRA 9:10)

(Bearing metals) (Copper-lead-manganese alloys)

AKIMOVA, K.I.; BAZHENOV, M.F.; BAKHVALOV, G.T.; BEZKLUBENKO, N.P.; BERMAN,S.I.; BOGDANOV, Ye.S.; BODYAKO, M.N.; BOYKO, B.B.; VINOGRADOV, S.V.; GAGEN-TORN, K.V.; GLEK, T.P.; GOREV, K.V.; GRADUSOV, P.I.; GUSHCHINA,T.N.; YEMEL'YANOV, A.K.; YESIKOV, M.P.; ZDZYARSKIY, A.V.; ZAKHAROV, M.V.; ZAKHAROVA, M.I.: KARCHEVSKIY, V.A.; KOMAROV, A.M.; KORZHENKO, O.T.; LAYNER, V.I.; MAL'TSEV, M.V.; MILLER, L.Ye.; MILOVANOV, A.I.; MIRONOV, S.S.; NIKONOROVA, N.A.; OL'KHOV, N.P.: OSIPOVA, T.V.; OSOKIN, N.Ye.; PERLIN, I.L.; PLAKSIN, I.N.: PROKOF'YEV, A.D.; RUMYANTSEV, M.V.; SEVERDENKO, V.P.; SEREDIN, P.I.; SMIRYAGIN, A.P.; SPASSKIY, A.G.; TITOV, P.S.; TURKOVSKAYA, A.V.; SHAKHNAZAROV, A.K.; SHPICHINETSKIY, Ye.S.; YURKSHTOVICH, N.A.; YUSHKOV, A.V.; YANUSHEVICH, L.V.

Sergei Ivanovich Gubkin. TSvet.met. 28 no.6:60-61 N-D '55. (MIRA 10:11)
(Gubkin, Sergei Ivanovich, 1898-1955)

SMIRYAGIN, Aleksey Petrovich; KOROL'KOV, kandidat tekhnicheskikh nauk, retsenzent; POSTNIKOV, N.N., inzhenr, retsenzent; SHPICHINETSKIY, Ye.S., redaktor; KAMAYEVA, O.M., redaktor izdatel'stva; EVENSON, I.M., tekhnicheskiy redaktor

[Industrial nonferrous metals and alloys] Promyshlennye tsvetnye metally i splavy. Izd. 2-e, perer. i dop. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1956. 559 p. (MIRA 9:7)
(Nonferrous metals)

137-58-5-10444

SMIRYAGIN, A.P.

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 222 (USSR)

AUTHORS: Smiryagin, A.P., Kvurt, O.S.

TITLE: Effect of Silicon, Iron, and Beryllium on the Rate of Diffusion of Iron in Aluminum (Vliyaniye kremniya, zheleza i berilliya na skorost' diffuzii zheleza v alyuminii)

PERIODICAL: Tr. Gos. n.-i. i proyektn. in-ta po obrabotke tsvetn. met., 1957, Nr 16, pp 90-115

ABSTRACT: An investigation is made of the diffusion (D) of radioactive Fe^{59} in Al-base alloys (99.996% pure Al). The following alloys are studied: Al-Si(0.57-3.54% Si), Al-Fe(0.58-1.16% Fe), Al-Si-Te(0.55-1.87% Si, 0.60% Fe), and Al-Be(0.25-0.50% Be). The specimens were annealed at 500°C to attain states of equilibrium, and the layer of Fe^{59} was applied to the surfaces of the specimens by electrolysis. The diffusive anneal was run in a vacuum of 10^{-4} to 10^{-5} mm Hg at temperatures of 500-600° and holding times of 1 to 6 hours. Measurement of the coefficient of D was done by the method of Kryukov and Zhukhovitskiy (Dokl. AN SSSR, 1953, Vol 90, Nr 3). The speed of reactive D of Fe in Al alloys was studied metallographically by measurement of

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137-58-5-10444

Effect of Silicon, Iron (cont.)

layer thickness It is shown that Fe and Be have no significant effect on the rate of D of Fe in Al either in the formation of a solid solution or in reactive D. Si has a very powerful effect on the process of reactive D. Formation of an intermediate layer of chemical compound in the boundary zone ceases at Si contents in the Al of up to 1% and annealing temperatures to 550°. This effect is due to the formation of an Al-Fe-Si complex in the form of a very thin film interfering with D. As the Si content of the alloy rises, a fusible eutectic appears (m.p. 577°). Acceleration of D at 600° in this case is due to a reaction between the solid and liquid phases. Bibliography: 19 references.

L. M.

1. Iron--Diffusion 2. Aluminum--Metallurgical effects 3. Silicon--Metallurgical effects 4. Beryllium--Metallurgical effects

Card 2/2

137-58-4-8036

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 236 (USSR)

AUTHORS: Smiryagin, A.P., Kvurt, O.S.

TITLE: Effect of Copper and Silicon on the Rate of the Diffusion of Iron in Nickel (Vliyaniye medi i kremniya na skorost' diffuzii zheleza v nikel')

PERIODICAL: Tr. Gos. n.-i. i proyektn. in-ta po obrabotke tsvetn. met., 1957, Nr 16, pp 116-126

ABSTRACT: The diffusion (D) of Fe in Ni-Cu alloys with 1.26, 2.16, and 5.1% Cu and in Ni-Si alloys with 0.1, 0.13, 0.45, and 0.80% Si was studied by means of the radioactive isotope Fe^{59} which was applied electrolytically as an 0.4 micron layer on samples 40-80 microns thick. The specimens were annealed at 900, 950, 1000, 1025, and 1050°C for 1 to 5 hours. The coefficient of D was determined from the slope of its linear relationship log $(J_1-J)(J_1+J_2)$ to the annealing time (J_1 and J_2 being the intensity of irradiation of the specimen on the two sides) by the Kryukov and Zhukhovitskiy method of thin specimens (Kryukov, S.N., and Zhukhovitskyy, A.A., Dokl. AN SSSR, 1953, Vol 90, Nr 3, p 379). Cu brings about a negligible increase in the D rate of Fe

Card 1/2

AUTHORS: Smiryagin, A. P., Potemkin, A. Ya., Martynyuk, R. P.

78-3-4-3/38

TITLE: Investigation of the Phase Diagram Nickel-Molybdenum-Chromium (Issledovaniye diagrammy sostoyaniya nikel'-molibden-khrom)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 4, pp. 853-859 (USSR)

ABSTRACT: The nickel corner in the phase diagram of the system Ni-Mo-Cr (up to 40% molybdenum and up to 40% chromium) was investigated using the thermal and microscopic analysis.
Eight polythermal sections of the nickel corner in the phase diagram nickel-molybdenum-chromium were constructed. The phase composition and the hardness of the alloys were investigated at temperatures of 1270°, 1200°, 950°, 800° and 700°C. The saturation limit of the ternary solid solution of the basis of nickel was determined at temperatures of 700°, 800°, 950° and 1000°C.
It was shown that with a drop of temperature the solubility of molybdenum and chromium in nickel decreases markedly. Also the sectional diagrams with a constant content of 4%, 8,5%, 3,5% and 20% of chromium were constructed.

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Investigation of the Phase Diagram Nickel-Molybdenum-Chromium 78-3-4-3/38

The hardness and the temperature coefficient of the electric resistance of three-component alloys was investigated in the following states: after annealing and after hardening at 1200°, 950°, 800° and 700°C. Also the hardness of the cast alloys in vacuum was determined at temperatures of 20°, 200°, 300°, 400°, 500°, 600°, 700°, 800°, 900° and 1000°C.
There are 10 figures, 1 table, and 13 references, 1 of which is Soviet.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut obrabotki tsvetnykh metallov, Moskva (Moscow, State Scientific Research Institute for Working Non-Ferrous Metals)

Card 2/2

SMIRYAGIN, A.P.; KVURT, O.S.

Research of efficient alloys based on copper with utilization of secondary metals. Biul.TSIIN tsvet.met. no.10:26-31 '58. (MIRA 11:9)

(Copper alloys--Metallography)

SMIRYAGIN, A.P.; KVURT, O.S.

Research of efficient copper base alloys with utilization of secondary metals(conclusion). Biul. TSIIN tsvet. met. no. 11:23-28 '58.
(MIRA 11:7)

(Copper alloys--Metallography)

SMIRYAGIN, A.P.; KVURT, O.S.; ARKHIPOV, I.P.

Recrystallization of commercial titanium. Issl.splav.tsvet.
met. no.2:92-95 '60. (MIRA 13:5)
(Titanium--Metallography)

18.1285

29472
S/137/61/000/008/037/037
A060/A101

AUTHORS: Smiryagin, A. P., Arkhipov, I. P., Kvurt, O. S.

TITLE: Study of the effect of the degree of deformation, temperature and duration of annealing upon the mechanical properties and recrystallization of commercial titanium

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1961, 24, abstract 8I188 ("Tr. Gos. n.-i. i proyektn. in-ta po obrabotke tsvetn. met.", 1960, no. 18, 7-29)

TEXT: An investigation was carried out on the effect of the degree of deformation, temperature and duration of annealing upon the structure and characteristics of a sheet of commercial titanium with composition (in %): Ti 99.2, W 0.16, C 0.04, Si 0.13, Fe 0.21, O 0.002, H 0.0097. At annealing of slightly deformed Ti one obtains an inhomogeneous structure, which is a deleterious factor in the subsequent working (stamping and the like) of semifinished articles from commercial Ti. The critical degree of deformation of commercial Ti lies between the limits of 2.5 - 5% cold hardening. The optimal annealing temperature in air for commercial Ti deformed up to 30% and above is 600°C.

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29472
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A060/A101

Study of the effect of the degree ...

This ensures high-grade mechanical characteristics, homogeneity of the structure, and minimum oxidation of the commercial Ti, and the annealing time at such a temperature has no great effect upon the quality of the semifinished products and the commercial Ti. There are 8 references.

X

T. Rumyantseva

[Abstracter's note: Complete translation]

Card 2/2

S/137/61/000/010/041/056
A006/A101

AUTHORS: Smirnyagin, A.P., Arkhipov, I.P.

TITLE: The effect of heat treatment on the mechanical properties of commercial titanium

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 10, 1961, 25-26, abstract 10I181 ("Tr. Gos. n.-i. i proyektn. in-ta po obrabotke tsvetn. met", 1960, no. 18, 30 - 36)

TEXT: The authors investigated the mechanical properties during tension and the bending angle of 99.2% purity Ti depending on temperature and duration of annealing; σ_b of sheet Ti does not depend on the holding time during annealing at 600 - 900°C. σ_b after annealing at 1,000°C, has a maximum value at 60 minute holding, after annealing at 1,100°C at 15 min holding, and after annealing at 1,200°C at 5 min holding. The decrease of σ_b at extended annealing time, is apparently connected with oxidation of specimens and their saturation with O and N. It is recommended to perform annealing of commercial Ti in air at 600°C and 60 minute holding time, since in that case Ti absorbs lesser amounts of O and N and is less oxidized.

[Abstracter's note: Complete translation] N. Sladkova

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18 7500

28550
S/137/61/000/009/025/087
A060/A101

AUTHORS: Smiryagin, A.P., Kvurt, O.S.

TITLE: Influence of manganese and chromium on the diffusion rate of iron in nickel

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 9, 1961, 2, abstract 9Zh9 ("Tr. Gos. n.-i. i proyektn. in-ta po obrabotke tsvetn. met.", 1960, no. 18, 58 - 70)

TEXT: By means of the radioactive isotope Fe^{59} the influence of 1.07-4.96% Mn, or of 0.5-5.7% Cr upon the diffusion rate in Fe-Ni alloys was investigated. The 0.4 μ thick layer of radioactive Fe was electrolytically deposited on specimens with dimensions 10 x 5 mm, whereupon they were subjected to diffusion-annealing at 900, 950, 1,000, 1,050 and 1,100°C for periods of 1, 2, 3, 4 and 5 hours in a vacuum of 10^{-4} - 10^{-5} mm Mg. It was established that an admixture of Mn or Cr notably retards the diffusion process of Fe in Ni. Under the influence of Mn the activation heat and the value of the pre-exponential factor rise sharply. For Fe-Ni alloys containing 1.07 or 4.96% Mn the respective values of pre-exponential factor are $1.9 \cdot 10^{-2}$ or $2.5 \cdot 10^{-2}$ cm/sec; activation energy 52,000

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28550

Influence of manganese ...

S/137/61/000/009/025/087
A060/A101

and 59,657 cal/g-atom, for alloys containing 0.5, 2.6, or 5.7% Cr the respective values of pre-exponential factor are 1.6 · 10^{-6}, 6.0 · 10^{-6} cm^2/sec, and activation energies of 28,024; 31,833, and 27,643 cal/g-atom were found. There are 12 references.

V. Srednogorska

[Abstracter's note: Complete translation]

X

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PHASE I BOOK EXPLOITATION SOV/5530

Smiryagin, A. P., N. Z. Dnestrovskiy, A. D. Landikhov, N. N. Kreyndlin, G. N. Krucher, V. A. Golovin, B. L. Urin, and V. N. Gol'dreyer

Spravochnik po obrabotke tsvetnykh metallov i splavov (Handbook on the Processing of Nonferrous Metals and Alloys) Moscow, Metallurgizdat, 1961. 872 p. Errata slip inserted. 9,300 copies printed.

Ed. (Title page): L. Ye. Miller, Candidate of Technical Sciences; Ed. of Publishing House: K. D. Misharina; Tech. Ed.: M. K. Attopovich.

PURPOSE: This handbook is intended for technical personnel of metalworking and machine-building plants, design organizations, scientific research institutes, and laboratories, and for students at schools of higher technical education.

COVERAGE: The handbook discusses the physicochemical and mechanical properties of certain elements and the composition and properties of

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nonferrous metals and alloys, and includes an explanation of the theory of principal methods for the hot and cold working of nonferrous metals and alloys. Reference material on designing, engineering-economic planning, quality control, and other aspects of production is systematized and presented. Each part of the handbook contains explanations of principles underlying basic processes, presents formulas for process and engineering calculations, analyzes properties of metals and alloys, gives parameters of accompanying and secondary processes, and describes equipment and tools and their operational parameters. The authors thank I. L. Perlin, Ya. F. Shabashov, and M. F. Bazhenov. References accompany each part, as well as various chapters. There are 130 references, mostly Soviet.

TABLE OF CONTENTS: [Abridged: Chapter subdivisions omitted]

PART I. PHYSICAL METALLURGY
[by A. P. Smiryagin, Candidate of Technical Sciences]

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S/806/62/000/003/009/018

AUTHORS: Smiryagin, A. P., Martynok, R. P.

TITLE: Investigation of the Cu-Si-Mn system.

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Issledovaniye splavov tsvetnykh metallov. no.3. 1962, 98-107.

TEXT: The paper describes an experimental investigation of three sections of the Cu-Si-Mn system: (1) Cu-MnSi up to 100%, (2) Cu-Mn_5Si_3 up to 100%, and (3) Cu-$MnSi_2$, partly. The investigation comprised thermal, microscopic (MS) electrical-conductivity (EC), and hardness (H) tests. Electrolytical Cu (99.95%) and Mn (99.95%) and 99% Si were used. The test results (2 full pages of tabulations, plus graph) indicate that the Cu-MnSi section is a quasibinary eutectic diagram, contrary to K. L. Dreyer's conclusion (Metall, no.5/6, 1953, 186-189), also, that there is no clear-cut H-EC-MS relationship for alloys of that system and that there is no sharp change in properties in any transition from a homogeneous region to a heterogeneous region (full-page graphs). The Cu-Mn_5Si_3 section is also found to be quasibinary (2 full pages of tables). The liquidus and solidus boundaries found agree with Dreyer's, at least within the quantitative range of Dreyer's work (50%); the boundary of the α solid solution is now determined more accurately. The α -

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SMIRYAGIN, A.; YELIN, I., nauchnyy sotrudnik; KVURT, O., nauchnyy sotrudnik;
ZHUR, N.

New alloy made of secondary nonferrous metals. Mor. flot 22
no.2:37-38 F '62. (MIRA 15:4)

1. Nachal'nik laboratorii tsvetnykh splavov Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta obrabotki tsvetnykh metallov (for Smiryagin). 2. Laboratoriya tsvetnykh splavov Gosudarstvennogo nauchno-issledovatel'skogo i proyektnogo instituta obrabotki tsvetnykh metallov (for Yelin, Kvurt).
3. Nachal'nik otdela TSentral'nogo nauchno-issledovatel'skogo instituta morskogo flota (for Zhur).

(Nonferrous alloys)

SMIRYAGIN, A.P.; KVURT, O.S.

Constitutional diagram of the system copper - boron. Trudy Giprotsvetmetobrabotka no.24:7-11 '65.

Constitutional diagram of the system nickel - boron. Ibid.:12-16

Copper corner of the system copper - nickel - boron. Ibid.:17-25

Copper corner of the system copper - silicon - zirconium. Ibid.:26-37 (MIRA 18:11)

L 21140-66 EWT(m)/EWA(d)/EWP(t) IJP(c) JD/JG
ACC NR: AT6006467 SOURCE CODE: UR/2680/65/000/024/0007/0011

AUTHOR: Smiryagin, A. P.; Kvurt, O. S.

33

BH

ORG: none

TITLE: Copper-boron phase diagram

SOURCE: Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov. Trudy, no. 24, 1965. Metallovedeniye i obrabotka tsvetnykh metallov i splavov (Metal science and the treatment of non-ferrous metals and alloys), 7-11

TOPIC TAGS: copper base alloy, boron containing alloy, alloy phase diagram

ABSTRACT: The authors study the phase diagram of the Cu-B system using grade MO cathodic copper and amorphous boron containing 0.4% SiO_2, 0.65% Al, 0.2% Fe, 1.9% Mg and small quantities of oxygen, nitrogen and hydrogen. The boron was added to the copper in the form of a copper-boron alloy produced by melting in a vacuum arc furnace. The boron content in this alloy was 2.3-2.6%. Tables are given showing the chemical composition, results of thermal analysis and resistivities of the various alloys studied. Photomicrographs are given showing the structures of slowly

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ACC NR: AT6006467

cooled copper-boron alloys in the cast state. A linear relationship is observed between % boron concentration and alloy hardness. This is typical of eutectic alloys. The addition of boron increases the resistivity of copper, although this increase is slight and depends on the quenching temperature. Alloys quenched from a temperature close to the eutectic melting point have the maximum resistivity. A reduction in the quanching temperature results in a slight decrease in resistivity. This indicates a low absolute solubility of copper boride in copper which is weakly dependent on temperature. The phase diagram of the Cu-B system is of the eutectic type. The eutectic is made up of a weakly doped α-solid solution of boron in copper and CuB_{22}. The eutectic horizontal is located at 1021 ± 2°C with a eutectic concentration of 2% boron. Boron has a solubility of approximately 0.05% in copper at the eutectic temperature. Boron solubility in copper at room temperature is close to 0.01%. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 11/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 004

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L 21141-66 EWT(m)/EWA(d)/EWP(t) IJP(c) JD/JG/JXT(CZ)
ACC NR: AT6006468 SOURCE CODE: UR/2680/65/000/024/0012/0016

AUTHOR: Smiryagin, A. P.; Kvurt, O. S.

39

B+1

ORG: none*

TITLE: Nickel-boron phase diagram

55,21

SOURCE:* Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov. Trudy, no. 24, 1965. Metallovedeniye i obrabotka tsvetnykh metallov i splavov (Metal science and the treatment of nonferrous metals and alloys), 12-16

TOPIC TAGS: alloy phase diagram, nickel base alloy, boron containing alloy

ABSTRACT: The authors study the phase diagram of the Ni-B system using grade NO nickel and amorphous boron containing 0.4% SiO_2, 0.65% Al, 0.2% Fe, 1.9% Mg and small quantities of oxygen, nitrogen and hydrogen. The boron was added in the form of a nickel-boron alloy containing 16% boron. The chemical compositions and data from thermal analysis of the various alloys studied are tabulated. Analysis of the cooling curves shows that crystallization of the eutectic, particularly on the right side of the diagram, takes place with considerable supercooling. This may be

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ACC NR: AT6006468

due to the difficulty in formation of Ni_2B crystals from the melt with a complex body-centered tetragonal lattice with parameters a = 4.980 Å, c = 4.236 Å and c/a = = 8.51. Microscopic analysis of the alloys in the cast state showed that the addition of 0.1% boron to the nickel produces a component whose eutectic nature is clearly apparent in alloys with higher boron concentration. The quantity of eutectic increases with boron concentration up to 1.75-1.85%. This is close to the eutectic concentration. A liquid phase is observed in the structure when alloys containing 0.1 and 0.5% boron are quenched from 1000°C. This confirms the eutectic nature of the horizontal at 980°C. A phase diagram is given for the nickel-boron system for boron concentrations up to 6%. This diagram may be considered as made up of two independent diagrams of the eutectic type. The first diagram (on the nickel side) forms a eutectic at a boron concentration of approximately 1.8% with a melting point of approximately 980°C. This eutectic is made up of an α-solid solution based on nickel and Ni_9B crystals. The second eutectic diagram corresponds to Ni_9B-Ni_2B with a eutectic concentration of 4% boron and a melting point of 1080°C. Orig. art. has: 4 figures, 1 table.

SUB CODE: 11/ SUBM DATE: 00/ ORIG REF: 002/ OTH REF: 006

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L 24431-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t) IJP(c) JD

ACC NR: AT6006485 SOURCE CODE: UR/2680/65/000/024/0324/0332

42
B+1

AUTHORS: Smiryagin, A. P.; Martynyuk, P. P. (deceased)

ORG: State Scientific Research and Design Institute of Alloys and Nonferrous Metalworking, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov)

TITLE: Change of microhardness 18 of technical titanium and alloy VT-5D as a function of the thermal treatment conditions 37 18

SOURCE: Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov. Trudy, no. 24, 1965. Metallovedeniye i obrabotka tsvetnykh metallov i splavov (Metal science and the treatment of nonferrous metals and alloys), 324-332

TOPIC TAGS: titanium, titanium alloy, metal heat treatment, nonferrous metal alloy/ VT-5D alloy

ABSTRACT: The object of the investigation was to determine the effect of temperature and duration of annealing 18 in air on the microhardness of technical titanium and alloy VT-5D. The microhardness and the microstructure of the specimens were

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ACC NR: AT6006485

determined after annealing in air at various temperatures (from 700 to 1200C) over a period of 15--360 minutes. Several photographs of polished sections of the specimens are presented. The experimental results are presented in graphs and tables (see Fig. 1).

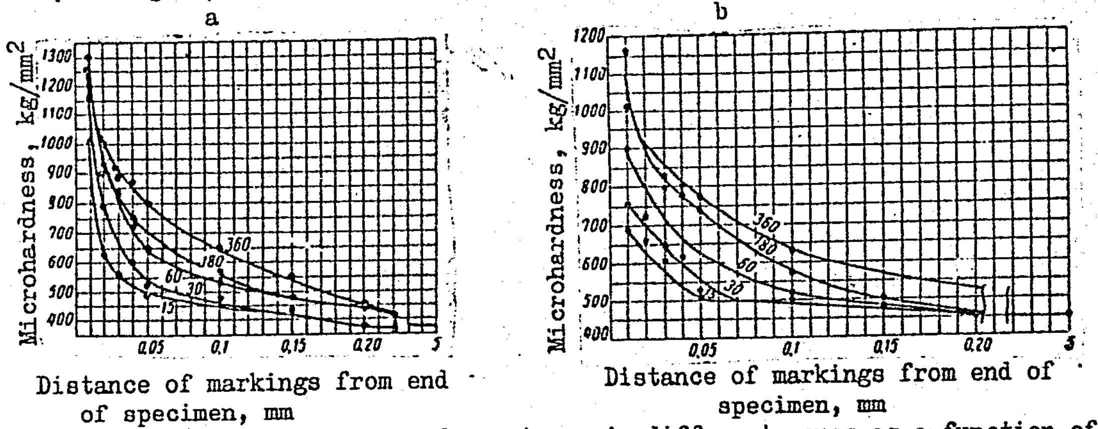

Fig. 1. Change in microhardness of specimens in different zones as a function of the period and temperature of annealing. Specimens were annealed at 1200C for 15,

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ACC NR: AT6006485

30, 60, 180, and 360 minutes and quenched in water. a - technical titanium; b - alloy VT-5D.

It was found that during annealing of technical titanium at 700C the diffusion layer formed on its surface was of negligible thickness, but that the rate of formation and thickness of the diffusion layer increased with increase in the duration and temperature of annealing. Annealing of the alloy VT-5D at 800C resulted in a slow formation of a brittle surface layer. It is therefore recommended that intermediate products manufactured from alloy VT-5D should be cold-worked at temperatures of 600--800C. It was found that the rate of formation of the diffusion layer is more rapid in α titanium than in β-titanium, and that the allotropic transformation $\alpha \rightarrow \beta$ takes place at ~900C in technical titanium and at ~1000C in the alloy VT-5D. Orig. art. has: 3 tables and 9 graphs.

SUB CODE: 11/3 SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 3/3 dla

SMIRYAGIN S. D.

Smiryagin S. D., "Automatic Temperature Regulators," Moscow, 1953, 32 pages with diagrams (V. M. Molotov Energy Institute, Technological Information).